

Answer the following questions:

- Q1. Determine whether the following relation is reflexive, symmetric and transitive:
Relation R in the set $A = \{1, 2, 3, 4, \dots, 13, 14\}$ defined as $R = \{(x, y): 3x - y = 0\}$.
- Q2. Check whether the relation R defined in the set R of all real numbers as $R = \{(a, b): a \leq b^2\}$ is reflexive, symmetric and transitive.
- Q3. Check whether the relation R defined in the set R of all real numbers as $R = \{(a, b): a \leq b^3\}$ is reflexive, symmetric and transitive.
- Q4. Show that the relation R defined in the set $A = \{x \in Z: 0 \leq x \leq 16\}$ as $R = \{(a, b): |a - b| \text{ is a multiple of } 4\}$ is an equivalence relation. Find the set of all elements related to 1.
- Q5. Let R be a relation defined on the set of natural numbers N as follows:
 $R = \{(x, y): x \in N, y \in N, 2x + y = 41\}$.
Find the domain and range of the relation R . Also, verify whether R is reflexive, symmetric and transitive.